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ABSTRACT

After defining school culture in terms of Organizational Culture, after Maehr and Braskamp (1986), this document presents three related studies, each based on data from a 1989 statewide assessment effort by the University of Illinois and the Illinois State Board of Education. The studies explore the relationship between school culture, motivation, and achievement. The first uses data collected from 9,693 high school juniors and examines school characteristics and family background in relationship to student motivation and academic achievement in specific subjects. The second study, drawn from the responses of 4,002 10th-grade students, explores the viability of the causal model in which school culture affects motivation, which, in turn, affects achievement. Also discussed are the influence of peer and family achievement pressure on motivation and achievement. The third study uses the same database as the second and examines the relative influence of the five dimensions of school culture--namely, accomplishment, power, recognition, affiliation, and overall sense of purpose--on student motivation. Lastly, the degree to which student ethnicity, enrollment orientation, and education of parents influence the effect the different facets of school culture have on motivation is discussed. Included are 3 figures and 14 tables. (56 references) (CLA)

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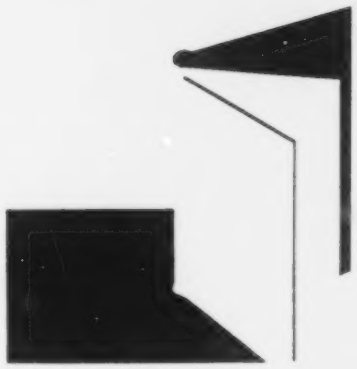

School Culture, Motivation, and Achievement

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The National Center for School Leadership

Project Report

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In collaboration with

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The National Center for School Leadership

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Our objectives are to produce new knowledge about school leadership and influence the practice and preparation of school leaders. Through various research programs and dissemination activities, we aim to give school leaders effective strategies and methods to influence teaching and learning.

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SCHOOL CULTURE, MOTIVATION, AND ACHIEVEMENT

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Introduction

Productivity and societal achievement are major issues of the day. School effectiveness, productivity, and achievement are at the center of the discussions in this regard. Indeed, one can even suggest that, increasingly, the schools are seen as a, if not the, central organization in the drive to attain a competitive edge in the world economy (cf. DeConcini, 1988). Whether that is right or wrong, good or bad -- and whether one likes it or not that is a "bottom line" issue in today's world. It is not something that will fade away. It will probably increase in importance! The Achieving Society (McClelland, 1961) sought, demands what may be termed "Achieving Schools." That is, schools that effectively and efficiently enhance the learning and achievement of students.

So, what makes an organization effective -- what makes a school thrive? That, of course, is a most important question, one that has driven a considerable amount of scholarly effort in the last decade or so. It is beyond the scope of this paper to review that literature, particularly since such reviews are available elsewhere (e.g., Good & Weinstein, 1986). Rather, it is the purpose of this paper to consider the critical and problematic role of educational leadership in this regard. What can a leader do to create and maintain effective, productive, and achieving schools?

This paper builds on three points extant in the literature. A first point is that employee commitment, personal investment, or, more generally, motivation are important components, perhaps the sine qua non, of organizational effectiveness (cf. Labich, 1988).

Indeed, definitions of organizational effectiveness often verge on identifying the motivational component as the crucial differentiating factor. Recently, however, the crucial role of motivation in schools has not only been asserted but increasingly examined in a systematic and quantifiable way. Thus, studies by Walberg (1981; 1984) have suggested that motivation accounts for between 16%-20% of the variation in student achievement -- a truly important portion, especially when one considers that many of the other factors considered in Walberg's analysis (e.g., ability) were not ones over which the schools have control. Moreover, recent research by Fyans and Maehr (1987), involving a more intensive scrutiny of the role of motivation, indicated that motivational factors accounted for up to 38% of the student achievement variance. This is confirmation for what is often asserted: student motivation is critical to student achievement (Maehr, & Archer, 1987). Further, there is reason to believe that student motivation is significantly dependent upon teacher motivation (Ames, Maehr, Fisher, & Archer, 1989; deCharms, 1976; Rosenholtz, 1985). It is, in short, becoming increasingly apparent that motivation, the involvement, the "personal investment" (Maehr, 1984; Maehr & Braskamp, 1986) of both teachers and students in the educational enterprise is a critical component in the learning process. To have a school which makes maximum uses of its resources in reaching its goals, both students and teachers must be involved in meeting these goals.

A second point is that leadership is important, even critical, to the creation and maintenance of effective organizations in general and effective schools in particular. Thus various authors commenting on the presumed malaise of U.S. business and industry have especially singled out this important and critical factor (Bennis & Nanus, 1985; Labich, 1988; Lawler, 1986), calling especially for "visionary leadership" (Sashkin & Fulmer, 1987). Similarly, educational research has identified a number of different factors associated with school effectiveness. Among these is the kind of leadership exhibited by administrators, particularly the principal (Lightfoot, 1983; Purkey & Smith, 1982; Sergiovanni, 1984). In particular, the emphasis has been placed especially on the

"instructional leadership" (Murphy, 1988; In Press) of the principal. That is, on his/her role in setting instructional goals, defining mission, monitoring progress toward actualizing these and generally setting the scene for a cooperative, productive workplace.

In addition to those two points, one can pull them together and make a third: A major purpose of leadership is motivation. Leaders can and must play a motivational role in the organization. That point has been made before but not as vigorously as one might expect. Recently, the important and complicating questions surrounding that point have once again become the object of increased discussion(see e.g., Conger & Kanungo, 1987).

But what is it that a leader can do to affect motivation? In this regard, it has been suggested (e.g., Maehr, 1987) that leaders can influence the motivation of individuals in an organization by developing an organizational environment or "culture" which fosters motivation. That assertion represents a major conceptual leap which demands specification and empirical validation. How should culture be defined and assessed? How is it associated with motivation and achievement? And if it can indeed be associated with motivation and achievement, how can a leader affect it?

This chapter will focus on the first and second questions, by way of preparing for a later consideration of the third. First, recent work directed toward conceptualizing and operationalizing organizational culture in general -- and school culture in particular -- will be summarized. Second, recent, and as yet unpublished, research directed toward determining the relationship of school culture to motivation and achievement will be presented.

Toward a Definition of School Culture

Scattered, diverse, limited, and limiting as the school effectiveness literature may be, it has served to reinforce several basic points. Social class, ethnicity, parenting skill, early experiences, peers, and extra-school experiences notwithstanding, schools do make a difference. Moreover, some schools make more of a difference than other schools . In an

early study, for example, Bock and Wiley (1967) found that 70%-80% of the variance in student achievement was attributable to school and classroom effects. Indeed, such findings of differential school effects has been a driving force in a school effectiveness "movement". There seems to be something that differentially characterizes schools, which is associated with how students perform. In an earlier article, Baden & Maehr, 1986 suggested that schools can be characterized by a "culture" and that this culture would likely influence motivation and school achievement of students. Culture was only defined in a preliminary way in that paper. Since that time this particular construct has been subjected to considerable attention, which has led to further definition of the construct. It is helpful to review this definitional work as a background for more recent research efforts to be reported in this chapter.

The Nature and Assessment of Culture

The concept of culture is an established concept within the realm of social science theory and research. That does not necessarily mean to imply that there is universal agreement on the use of the term. However, there is a literature that provides a working definition to guide measurement and research. Generally, the use of the term "culture" assumes that a certain group of individuals has been functioning in an interdependent fashion over a period of time. When such social interaction exists, the group will arrive at ways of organizing itself, regularizing the behavior of its members, coordinating their functions, minimizing conflicts, etc. In sum, groups tend to work out ways of getting along among themselves. They arrive at certain shared understandings regarding how, when, and where activities are to occur. Above all, they specify the meaning, the value, and the purpose of these activities. In particular, thoughts and perceptions about what is worth striving for are a critical feature of any culture (Kluckhohn, 1961; Kluckhohn & Strodbeck, 1961; Maehr, 1974; Maehr & Stallings, 1985).

The study of culture has characteristically been associated with "naturalistic" methodology in which a participant observer gathers information on norms, perceptions,

and meanings through face to face interviews, as well as through experiences had while being a part of the scene. The assessment of culture by using standardizing tests, questionnaires, and psychological instruments has not been commonplace and is, by some, rejected outright as inappropriate. Yet, there is a basis for such a "psychometric" approach to the assessment of culture. One such basis is to be found in the work of Triandis et al. (1972). More specific to organizational culture per se, considerable work of relevance here has been conducted under such rubrics as organizational environments or climates (see, for example, Campbell, Dunnette, Lawler, & Weick, 1970; Cook, Hepworth, Wall, & Warr, 1981; James & Jones, 1974; Lawler, Hall, & Oldham, 1974; Schneider & Snyder, 1975; Stern, 1970).

Organizational Culture: A Psychometric Approach

In an earlier series of studies Maehr & Braskamp (1986; Maehr, 1987), made a specific attempt to focus the definition of organizational culture in such a way that it could not only be assessed psychometrically, but also so that it would be related specifically to motivational issues. Early on in this work it became evident that individuals were not only willing to talk about themselves, they were equally, if not more, able and willing to talk about their work. They readily described their workplace in motivational terms. Thus, they spontaneously not only talked about the incentives, rewards, and opportunities associated with their job, they also discussed how the company as a whole seemed to be promoting or emphasizing certain values. Of special interest, they expressed how they personally related to what the company stressed and promoted, and especially what the company recognized and rewarded. Thus, the clear possibility emerged that the goals and incentives evident to the employees or members of an organization may be a most important feature of the organization -- certainly so far as their own personal investment in the organization was concerned.

This is not to suggest that goals and incentives available within the organizational context are all that there is to the culture, but they are certainly a most important feature. As

noted earlier, the establishment and promotion of guidelines relative to what is worth striving for are integral features of culture. Conceivably, one could specify such desiderata in terms of dimensions identified as important in human striving. And Maehr and Braskamp built on this assumption. More specifically, they hypothesized that different organizations would tend to emphasize different purposes and goals for working which would match the personal incentive dimensions that were seen as crucial in guiding personal investment.

Subsequently, they constructed a series of questions about what was available to the worker in the organizational context, focusing especially on the pursuit of incentives and their availability. This eventuated in the development of a set of "organizational culture" scales (Braskamp & Maehr, 1985; Krug, this volume; Maehr & Braskamp, 1986). First, four scales were developed that indexed perceived organizational value stresses. These scales essentially paralleled the personal incentives that were found to be associated with the motivation or personal investment of individuals. Specifically, these scales embraced domains labeled as Accomplishment, Power, Affiliation, and Recognition. These dimensions are defined further in Table 1. Parenthetically, this complementarity of culture and person scales, of course, was not an altogether accidental finding. Indeed, a specific attempt was made to design parallel person and culture personal incentive or goal items. But it is hardly irrelevant that results supported the claim that individuals recognize categories of company goals that are comparable to the personal incentives that guide their personal investment.

In addition to developing four incentive-related scales for assessing organizational culture, Maehr and Braskamp also developed a fifth scale. There was reason to believe that the very saliency of an organizational culture in itself might be a critical factor. That was a point that was often made in ethnographic and other nonpsychometric studies (cf., for example, Deal & Kennedy, 1982; Peters & Waterman, 1982). Besides, it seems logical enough that companies may not only stress certain incentive possibilities or affirm certain

purposes, goals, and values, but they may also stress, to a greater or lesser degree, what the company stands for. They may be more or less effective in communicating these and, as a result, members of the organization may be more or less aware of such purposes, goals, and values. Thus, it seemed appropriate to ask persons about their awareness of what the company stood for and what it promoted. As it turned out, this was a wise decision since the responses on this scale proved to be quite interesting as well as useful in predicting certain patterns of behavior.

In general, this approach yielded reliably distinguishable dimensions of organizational culture. These dimensions are comparable to "personal incentives" that guide individual personal investment. Thus, as individuals may be guided especially by certain personal incentives, such as the intrinsic interest value of the job, so organizations may vary in the degree to which the work done there is interesting. They may vary in the stress on endeavoring to make work life challenging and in the degree to which employee self-actualization is an object of concern. Of course, these particular dimensions represent only one possible configuration of the dimensions of organizational culture. They evolved from a specific attempt to understand the organization in terms of personal investment theory and therewith focus on dimensions that have been found useful in that context. Different, but not altogether dissimilar, organizational culture dimensions, have been designated by others (see, for example, Denison, 1984, 1985). Thus, while it would not be wise to assume that these dimensions are the final word on the topic, they may well specify organizational variables of critical importance, especially so far as motivation and achievement are concerned.

Table 1

Dimensions of Organizational Culture Identified by

Maehr and Braskamp (1986)

Accomplishment
: Emphasis on excellence, doing the job right, trying new things, improving productivity

Power
: Emphasis on competition, contests encouraged, conflict not to be avoided, overt recognition of status and hierarchy

Affiliation
: Emphasis on interpersonal relationships, and caring for and respecting each person

Recognition
: Emphasis on recognition for good work; such recognition may include not only social approval, but extrinsic rewards; the instrumental nature rather than the intrinsic value of work is emphasized

Overall Sense of Purpose, Direction, or "Mission"
: Extent to which members of the organization view the organization as having a clear direction, a set of goals, expectations, and values

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Organizational Culture as "Subjective Culture"

The approach taken by Maehr & Braskamp is an approach related conceptually to work on "subjective culture" (Triandis et al., 1972). Thus, it employs the (psychometric) assessment of individual perceptions of facets of the culture in constructing cultural variables. One can, however, treat these perceptions in at least two different ways. These perceptions can be aggregated to construct an index of shared culture that could be used to distinguish certain groups and in turn serve as a group variable. Then we could aggregate the perceptions of students to construct a description of the school culture (e.g., high accomplishment - low power school), consider how this presumed environment relates to student behavior in ways different from schools characterized differently (e.g., low

accomplishment - high power school). Another possibility involves treating the organizational culture as a psychological environment that exists uniquely for each child. That is, we could treat it as an individual difference variable. Ames and Archer (1988) have recently made a case for treating such school environments as individual difference variables, arguing that in fact it is the individual student's perception of the environment that is the determinator of behavior. While we can accept the possibility of conceptualizing school culture in either way, depending on the research question, in the research we summarize in this chapter, we have chosen to treat the measures of school culture as individual difference variables.

Thus, it was hypothesized that students --like participants in other organizations -- would have perceptions about value stresses of their school and that these perceptions would likely relate to their motivation and achievement.

Studies of School Culture, Motivation, and Achievement

Given this background of extensive work on the definition and assessment of "Organizational Culture" in a wide variety of organizations, the authors took advantage of a fortuitous state of affairs that allowed for exploring the value of the organizational culture concept in predicting school achievement. The Illinois State Board of Education decided to study factors associated with achievement. A specific focus of this study was the relationship of motivation and school context to school achievement. For this purpose, they selected items for their survey that were adapted from previous research on motivation, achievement, and organizational culture. Then data were collected and made available to the authors for analysis and interpretation. Thus, a large data set was available to consider the relationships of school and student characteristics to motivation and achievement. Of primary interest was the fact that the assessment of school culture at one point in this program, using items adapted from the Braskamp and Maehr (1985) battery, made it possible to extend the study of organizational culture to the study of school culture,

student motivation, and achievement. The remainder of this chapter will be devoted to reporting and discussing the results of the analyses of these data conducted thus far. For purposes of convenience, this reporting will be divided into three "studies." Each study focuses on a different set of questions related to the wider issues of how school culture may influence student motivation and achievement.

Study 1

The purpose of the first study was to consider a wide variety of school and family background characteristics, in relationship to motivation and school achievement. These data were gathered by the University of Illinois and the Illinois State Board of Education in 1970 and 1981. The study involved two large representative samples of high school juniors who were in attendance at the same 120 selected schools at those two different time periods. More specifically, data were collected from 9,693 students who were juniors in high schools in Illinois in 1981. One-hundred and twenty Illinois high schools were selected at random from throughout the state, with the sampling strategy aimed at deriving a sample of Illinois schools that participated in an assessment in 1970. All of the schools participating in 1981 had participated in 1970. The focus of this chapter will be on the more recent and complete data gathered in 1980, with only incidental references to possible replication of results found in the 1970 sample

Variables

The variables considered are specified in Table 2, but an additional word or so may be in order.

Achievement. Six tests of academic achievement were used in this study: Natural Science, Social Science, English Part I, English Part II, Mathematics Part I, and Mathematics Part II.

Both English subtests tapped editing of English. However, items of English I focused on grammar, usage, word choice, and idiom. The items consisted of presenting a

sentence to the student that had been partitioned into four separately underlined components. The student was to determine if any of the four components were in error or if there was no error in the sentence at all. For English II, the focus was on the correctness and effectiveness of expression. Each item contained one sentence followed by five different options for rephrasing it for standard written English. The instructions focused the student toward selection based upon word choice, sentence construction, and punctuation.

Table 2

A Listing of Variables (And Their Clusters)

Considered in Reference to Student Achievement (Study 1)

School Context	Family Context
Enrollment	Family size
Dropout rate	Mother's education
Student to teacher ratio	Father's education
Per-pupil expenditure	Use of magazines in home
	Talking to parents about school
Motivation	Achievement
Attribution of success	Natural Science
Attribution of failure	Social Science
Level of competence	English (2 measures)
Test anxiety	Mathematics (2 measures)
Perceived value of education	
Expectation of success	
Continuing/intrinsic motivation	

Both mathematics subtests contained problem-solving type items. However, Mathematics I contained problem solving for higher order computation, exponentials, algebra, linear equations, and geometry. Mathematics II contained items for interpreting graphs and set theory.

These tests were originally developed by Educational Testing Service for a college entrance examination for the state of Florida.

Social Context. The variables used to measure family context were family size, level of mother's education, level of father's education, use of magazines in the home, and frequency of talking to parents about work in school. These data were gathered from the students through questionnaire items.

Student Motivation Student motivation was measured through items adapted from questionnaires regularly employed to assess attributions of success and failure, sense of competence, test anxiety, perceived value of education, expectations of success, and continuing motivation. These items had all been employed in previous waves of the state-wide testing program, and had also been subjected to extensive item analysis and tests of appropriate scaling (Fyans, 1983).

Results

As noted previously, the purpose of this study was to consider the contribution of a comprehensive set of variables (family background, school characteristics, and student motivation) to school achievement. The goal then was to determine the power of these clusters, individually and collectively, in explaining the variance in different achievement domains (Mathematics I, Mathematics II, English I, English II, Natural Science, and Social Science)

The overall findings are summarized in Table 3. Several are of special interest. First, achievement in mathematics and natural science appears to be predicted more by motivation profile. Second, the verbal skill areas of English and social sciences are most predicted by family background. Of special importance in this discussion is the finding that the school context cluster offers relatively weak prediction for most academic subtests.

Table 3

Performance Variance (R^2) Accounted for by

Individual Motivation, Family Context and School Context

Model	Math I	Math II	Eng. I	Eng. I	Nat. Sci.	Soc. Sci.
School Context	8%	11%	4%	6%	4%	5%
Family Context	17%	20%	20%	24%	22%	27%
Motivation	35%	34%	13%	17%	29%	21%
Full Model	45%	48%	34%	44%	43%	41%

Further, the results of a "commonality analysis" (Beaton, 1969; Cohen & Cohen, 1983; Cooley & Lohnes, 1976; Kerlinger, 1973; Mayeske, et al., 1969; Pedhazur, 1982) indicated that mathematics performance is predicted by the unique contribution of student motivation (see Table 4). The verbal skill areas of English and social sciences are explained most particularly by family context. For natural science achievement, a relative tie in explanative power occurs between student motivation and family context. The unique contribution of school context to the explanation of achievement in the three academic areas is self-evidently small. The commonality among all the predictors accounts for more of the Mathematics II and Natural Science variance than any of the variance unique to school, family, or motivation.

One of the more interesting findings presented in Table 3 was that school context accounted for little of the variance across the academic achievement domains assessed. It may be noted that this finding essentially replicates what was found eleven years before (1970). In that 1970 panel of data, the school context variables were also available for analysis for the 120 schools studied. Multiple regression of the school context variables for these schools for the 1970 data explained relatively meager amounts of performance

variance. More specifically, in 1970 school context accounted for 1% of the variance for Mathematics I, 7% for Mathematics II, 2% for English I, 2% for English II, 6% for Natural Science, and 3% for Social Science.

Table 4

Commonality Analysis of Performance Variance by Each Model

Model	Math I	Math II	Eng. I	Eng. I	Nat. Sci.	Soc. Sci.
Unique to School Context	1%	4%	7%	10%	6%	7%
Unique to Family Context	7%	8%	15%	17%	10%	15%
Unique to Student Motivation	20%	13%	4%	7%	11%	4%
Commonality	17%	23%	4%	10%	16%	15%

That school context did not emerge as an important predictor of school achievement is noteworthy. It may even be perplexing to some. But this finding is not without precedent, and probably contributes to an enlarging picture regarding the sources of school achievement. A close look at the nature of variables that composed this school context cluster indicates that the "psychological environment" of the school was, at best, only indirectly assessed through data gathered on school size, drop-out rate, student to teacher ratio and per-pupil expenditure. In some quarters, these are still thought to be critical school context variables. Regarding the student-teacher ratio and the per-pupil expenditure variables, these present results are in accord with findings of others (e.g., Walberg and Fowler, 1988) to the effect that additional resources, while often suggested as a solution to educational problems, do not in and by themselves serve as significant predictors of school achievement. Even a closer look at whether additional resources positively impacted schools with special problems, such as high minority enrollment, did not reveal any basis

for suggesting that extra resources might be the quick, if not necessarily easy, solution to the crisis of urban education (cf. Walberg, Bakalis, Bast & Baer, 1988). The "drop-out rate" variable within the school context cluster might be logically construed as an index of the social problems confronting the school. One thus might have expected that the drop-out rate of the school which students attended would have related strongly to the level of motivation and achievement exhibited. Such was not the case.

Table 5

Standardized Beta Weights Regressing Family Context on Academic Performance

Model	Math I	Math II	Eng. I	Eng. I	Nat. Sci.	Soc. Sci.
Family Size	.12	.13	.13	.13	.05	.12
Mother's Education	.20	.21	.15	.14	.08	.22
Father's Education	.25	.21	.10	.08	.22	.14
Use of Magazines in Home	.02	.10	.08	.23	.14	.09
Talk to Parent about School	.09	.15	.33	.27	.26	.32

Looking at the overall results of this study alone then, one would have to conclude, that motivation and school achievement are essentially determined by family context. Further, as one considers how the components of the family context cluster contribute to motivation and achievement (see Table 4), one can quickly note that social class (represented by mother's and father's education) plays a special role. Yet, there is a hint even in these data that the school need not be just a passive receptor of what the family creates. The "talk to parent about school" item is a primary predictor of school achievement, perhaps suggesting that recent school initiatives to engage the collaborative behavior of parents represents a course of action of significance (cf. Ames & Archer, 1987; Ames & Maehr, 1988; Walberg, 1984). But this is only a hint of a very small role that the

school can play and the overall impression is that the school is essentially helpless. But, how does this square with literature cited earlier that indicates that schools do have an effect? The kind of context characteristics assessed in this study do not appear to be important. What school characteristics do make a difference? The findings of Study 1 suggest that a new attack on this question is warranted and thus set the background for Studies 2 and 3, which focus more specifically on the psychological environment and the role of school culture in affecting student motivation and achievement.

Study 2

In the first study it was found that school characteristics were of marginal importance in affecting student motivation and achievement. But the school characteristics considered in that instance were largely external features of the school, such as demographic characteristics of the student body and dollars spent per student. Thus, in reflecting on these results, it was suggested that the culture of the school may in fact be the relevant context variable so far as influencing student motivation and achievement is concerned. That interpretation is compatible with a growing amount of evidence on the important role that organizational climate and culture can play in determining behavior. Given this background work on organizations in general, the second study was directed toward answering several questions regarding the possible effects of school culture on motivation and achievement. In outline fashion, the validity of the following causal sequence was considered:

School Culture -----> Student Motivation -----> Student Scholastic Achievement

Variables

Motivation. The dimensions and items employed in the case of motivation are the same as those employed and defined in the first study.

School Achievement. School achievement was defined by standardized achievement test results similar to those employed in Study 1. Specifically, in Study 2, the students' achievement was measured by their responses to subtest items from the

Metropolitan Achievement Test - Sixth Edition (1985). The subtests contained the mathematics, reading, and science items. The student responses to these national normed subtests were scored and then transformed to normal curve equivalents (NCE). Each student thus had an NCE for performance in mathematics, reading, and science, and this score was used in the analyses.

School Culture.. Previous work by Maehr and Braskamp (1986; Maehr, 1987) was used in defining and assessing school culture. Briefly, in this research on a variety of organizations, mostly non-educational in nature, four goal-related dimensions have been identified as viable descriptors of that aspect of the psychological climate associated with, and theoretically antecedent to, motivation. An additional dimension concerned more broadly with the perceived purposiveness of the organization, its sense of direction and its "mission," has also been identified. A description of these organizational culture variables was presented earlier (Table 1). For purposes of this study, 15 survey items were adapted from previous research (Maehr, 1987; Maehr & Braskamp, 1986) in order to assess the five components of school culture. The items comprising this school culture survey are presented in Table 6. Each item allowed for attitude responses on a five-point scale from strongly disagree to strongly agree with a scale of "0" for a not sure response. These "0" response choices were treated as missing data. However, very few students related "uncertain" as a response choice. Analyses of the inter-item correlations revealed substantial co-variation among the responses of the students. To that end, an unweighted least squares factor analysis of the 15 items was conducted. This factor analysis was followed by a Promax oblique rotation. The reference factors were used for interpretation. The results indicated that these 15 school culture items could be viewed as comprising one factor (Table 7).

Table 6

Items and Scales Employed in Assessing School Culture

Accomplishment

(1) This school makes me like to learn.
(2) It is important for me to do well in this school.
(3) This school makes me like to study.
(4) I do my best in this school.

Power

(5) I am very nervous about how well I perform at school.
(6) At this school it is very important to get good grades.

Recognition

(7) Doing well at school gets the approval of my teachers
(8) Doing well at school will help my future education.
(9) This school gives recognition for good performance.
(10) In this school, we hear about what the students do right, not their mistakes.

Affiliation

(11) I feel like I belong in school
(12) Teachers at this school treat students with respect.

Overall Sense of Organizational Direction ("Mission")

(13) At this school the teachers tell the students what is expected of them.
(14) I have respect for my principal.
(15) Every student in this school knows what it stands for.

Table 7

Summary of Results of Factor Analysis of 15 School Culture Items

Item Number	Factor Loadings
1	.32
2	.41
3	.54
4	.42
5	.49
6	.30
7	.42
8	.42
9	.46
10	.35
11	.39
12	.57
13	.46
14	.29
15	.44

The results given in Table 7 indicated that these items, while constructed to assess the five different dimensions of organizational or school culture, generally loaded high on a single factor with 40% of the response variance accounted for by this factor. Thus, in the first analysis that comprised Study 2, we decided to employ a single school culture score for each student by summing responses to these 15 items.

Peer and Family Achievement Press. Incidental to analyzing the role of school culture in influencing motivation and achievement, the comparative importance of two other psychological environments was also considered. Specifically, data were also gathered on the achievement norms and expectations that students perceived to be extant in their peer and family groups: peer and family achievement press.

The influence of the peer context toward educational achievement was assessed by responses to the items; "doing well at school impresses my friends." This item obtained scaled scores from zero for not sure to one to four for strongly disagree and strongly agree. The influences of the family context toward educational achievement was assessed by responses to the item; "doing well at school impresses my parents or guardian." This item obtained scaled scores from zero for not sure to one to four for strongly disagree to strongly agree.

In summary, this study focused on school culture as a possible determinant of motivation and achievement. Moreover, it compares the influence of school culture to other "subjective cultures" that likely influence the adolescent, specifically those associated with peer group(s) and family.

Subjects/Sample

The sample considered in this study was part of a larger sample of 16,000 third, sixth, eighth, and tenth grade students representative of students enrolled in Illinois public schools. This study focused specifically upon the responses of 4,002 tenth grade students involved in this larger study. These students were drawn randomly from 205 public high schools. It is important to note that the data were gathered following a multi-level design that systematically obtained information at both the student and school levels. As in Study 1, all data were gathered as part of a state-wide assessment program.

Results

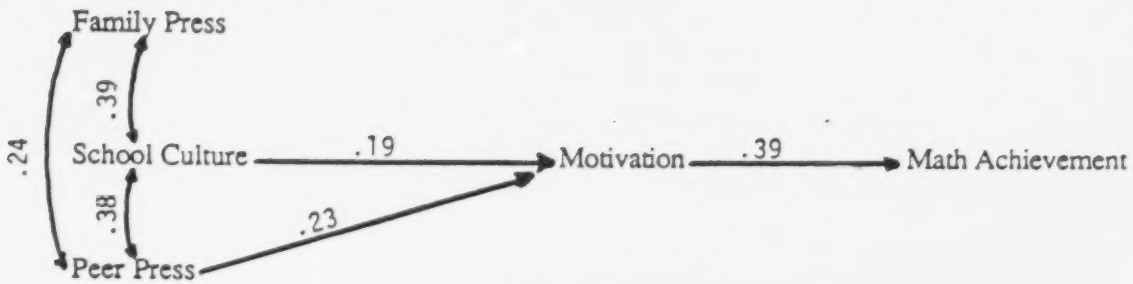
As suggested earlier, the purpose of this study was to explore the viability of a causal model in which school culture is proposed to affect motivation, which in turn influences achievement. In addition, the relationships of peer and family achievement press to motivation and achievement were compared to those found for school culture.

First, it may be noted that a series of multivariate analyses were conducted to determine the relationships of the various psychological environment variables to each other as well as to the motivation and achievement variables. Most instructive for the present

purposes, a series of path analyses were conducted separately for mathematics, reading and science achievement outcomes. Overall, the results of the path analyses suggested a direct motivational influence on student achievement. (see Figures 1, 2 and 3). The alternative model, namely that achievement causes motivation, was tested, but the data provided no support for this causal construction (for further information, see Maehr & Fyans, 1989). School culture and peer.press appear to have an indirect influence on achievement, one that is mediated through motivation. Note additionally that these social environment variables relate to each other, but they do not relate directly to achievement. It should be emphasized that family achievement press does not relate significantly either to motivation or to achievement.

Figure 1

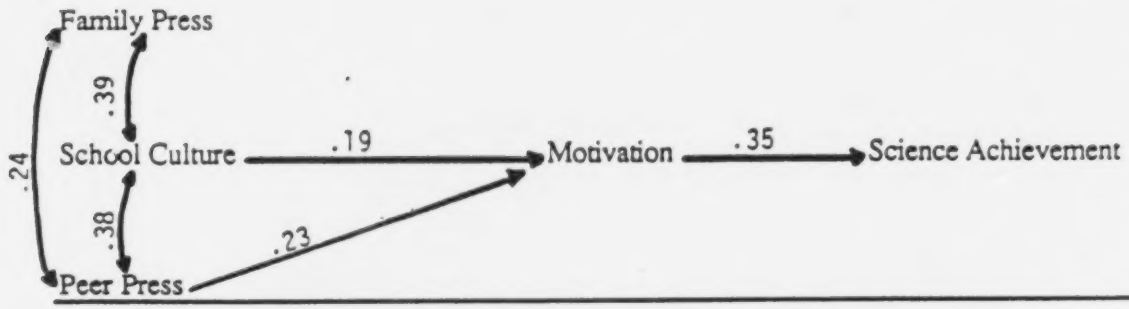
Portrayal of Path Analysis Results: Math



Note: The numbers along the arrows represent STANDARDIZED regression coefficients.

Figure 2

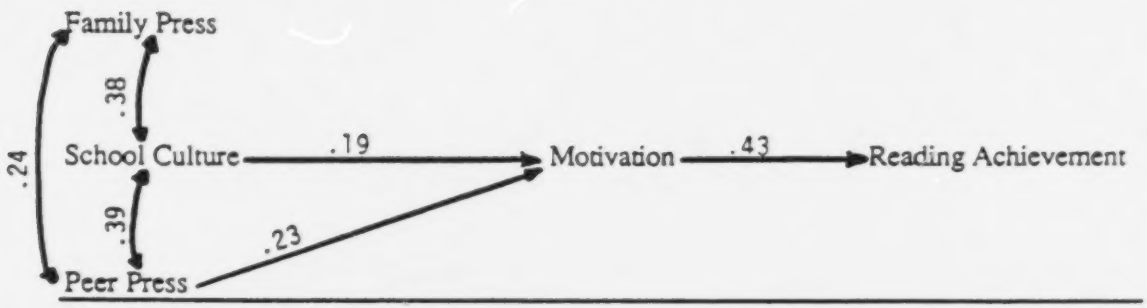
Portrayal of Path Analysis Results: Science



In sum, evidence for the existence of a causal chain leading from school culture through motivation to achievement is revealed in these results. Additionally, whereas family press does not appear to contribute to motivation or achievement, peer press does.

Figure 3

Portrayal of the Path Analysis Results: Reading



Discussion

The present results provide further evidence in support of two propositions which have evolved out of the study of organizations (see for example Denison, 1984; 1985). First, organizational culture and, in the present instance, school culture, is found to be a variable of some significance in predicting performance. Second, evidence was found that

the effects of school culture are mediated by motivational variables. More specifically, it may be noted that perceived culture was associated with certain motivational cognitions that collectively appear to be related to performance. This is in accord with theoretical arguments voiced especially by Maehr and Braskamp (1986; Maehr, 1987).

It is also of interest that for these adolescents, school culture and peer achievement press is apparently significant, but family achievement press is not. Checks into the reliability of the family press variable indicated that it had similar kinds of reliability as the other measures. Thus, one cannot attribute these findings to differentials in reliability of the measures. Of course, school culture is more widely indexed than either peer or family achievement press. Yet, on balance, the thrust of the evidence suggests that school culture and peer achievement press are indeed the critical variables in determining motivation and school achievement at this stage of life. And we especially emphasize the fact that the students in this case were adolescent high school students. One might wonder about the varied influences of these variables during earlier -- and later -- periods of schooling. For now, however, suffice it to say that such age-related variation in the apparent influence of family, peer and school awaits further analysis of the data.

This set of findings establishes the basis for a second stage of studies that attempts to determine the validity of the causal model suggested by the present results. Thus, a subsequent set of questions would likely revolve around the possibility of influencing school culture so as to influence motivation and achievement. There is a growing body of evidence (see for example, Ames 1987) that the psychological environments of smaller groups, such as the classroom, are crucial in affecting motivation and achievement. On the basis of the present results it is possible to begin thinking of a larger entity, the school, as likewise presenting a psychological environment, one that is under the potential control of school leaders such as principals.

This suggestion has been voiced before and in some quarters it has been taken for granted as an established principle in understanding and administering organizations

(Duignan, 1986; Schein, 1985). Our review of the literature, however, would suggest that most of what has been said about organizational culture in general and school culture in particular has severe limitations. Intersubjectively confirmable observations of organizational culture or school culture are few. To this point, the methods for conducting such studies are simply lacking. The theory for developing these methods is sketchy at best. The value of the present study, as we see it, rests not only in the fact that interesting results about schools, motivation, and achievement have been obtained. Perhaps the greater value is that the present study represents an important step in making the study of organizational culture a systematic and objective study linked to a body of theory.

Aside from these general comments on the nature and implications of the results, it is important to re-emphasize that this research represents a preliminary attempt to determine the validity of a set of hypotheses regarding psychological environments in general and school cultures in particular. However, as a preliminary study, it necessarily glosses over some of the subtleties of cultures, as well as motivation and school achievement. For example, it seemed defensible, certainly at this stage of our understanding, to treat school culture as a single dimension, even though that oversimplifies the matter considerably. Our own choice of items was based on previous theory and research that indicated a multidimensional concept of school culture. Even though a factor analysis indicated justification for proceeding with a unidimensional definition of organizational culture, we must re-assert the need to continue to explore the multifaceted nature of psychological environments. Might, for example, different stresses within the perceived environment relate to different facets of motivation and eventuate in varied school outcomes?

Such a question has merit. The present study must be complemented by studies that pursue lines of inquiry of this nature. In fact, this question anticipates Study 3 where such a line of inquiry was begun.

Study 3

Studies 1 and 2 led to several basic conclusions. First, individual student motivation is a critical mediating variable so far as school achievement is concerned. The importance of differential motivational orientations varies significantly and importantly with subject matter area. But, overall, motivation was consistently found to be strongly associated with school achievement. It makes a contribution independent of family background. Indeed, in the case of tenth graders, at least, it outweighs this factor, a factor that has always been thought to be of overwhelming significance. A second finding of significance relates to the effects of motivation on the school and subsequently, on achievement. While various external factors (e.g., per student dollar expenditure) do not explain student motivation or achievement, a certain characteristic of schools does. Briefly, what may perhaps more appropriately be called the "motivational culture" of the school accounted for a significant portion of the student motivation variance. Moreover, it was found that this facet of school culture accounted for more variance in student motivation than did perceived achievement press of the family. School motivational culture and peer achievement press were equivalent in their relationship to school motivation.

In sum, these two studies have established an argument for the importance, in general, of a construct such as organizational culture. More specifically, they have suggested the relevance of considering the "motivational culture" of the school as an antecedent of motivation and academic achievement. The purpose of Study 3 is to understand the nature of motivational culture a bit better.

In Study 2, school culture was essentially employed as a holistic unifactor variable. Essentially, school culture was indexed as "good" or "bad " so far as facilitating motivation and school achievement is concerned. Yet, theory (cf. Maehr, 1987; Maehr & Braskamp, 1986) and a closer look at the data indicated that one could consider various dimensions of school culture which, while generally related to each other and to overall school motivation and achievement, might have differential effects in certain instances.

Thus, there is reason to explore possible differential effects of the dimensions of organizational culture identified by Maehr & Braskamp (1986) reviewed earlier in this chapter.

Further, one might be specifically interested in how different cultural stresses might interact with sociocultural background and ethnicity of students in affecting motivation and achievement. From time to time it has been suggested that different learning environments will be differentially effective with subjects of different sociocultural background. To some degree, the popular interpretation of the effective school literature may even support this. Yet, there is precious little evidence on this point. A second purpose is to ameliorate that state of affairs, at least to some degree. Specifically, we intend to consider how variations along the Maehr-Braskamp organizational culture dimensions may interact with student background in affecting motivation and achievement.

Variables

As already implied, Study 3 represents an expanded analysis of the same data set employed in Study 2. Thus, the sample and the essential data gathering procedures are the same. A primary difference between Study 3 and Study 2 is that school culture was not treated as a unifactor variable in Study 3 , as it was in Study 2. Rather, in this study we proceed to consider culture along five dimensions, as originally proposed by the theory of personal investment. While these five dimensions are clearly not unrelated, as noted in Study 2, there may be some basis for considering them separately at this exploratory stage.

Research Questions

In summary, Study 3 was directed toward answering essentially two basic questions:

1) How do each of the school culture dimensions contribute to the overall relationship found between school culture and student motivation?

2) Do these different facets of culture interact in different ways with student background? By "student background" we refer specifically to ethnicity (black, white,

Hispanic and Asian) and parental education (levels of schooling attained). In this connection we also considered the students' enrollment orientation (college prep, business/commercial, vocational/technical & general).

Results

School Culture--->Motivation. The relationship of school culture to motivation was first of all considered. A multiple regression analysis was conducted in which each of the culture dimensions served as the predictor variables and the summed motivation score was the criterion variable. The results of this analysis are presented in Table 8. There it can be seen that in the prediction of motivation from motivational culture (Study 2), the Accomplishment and Recognition dimensions figure most strongly.

Table 8
School Culture and Student Motivation:
Summary of Results of Multiple Regression Analysis

Predictor		Beta		Standardized Beta	
Intercept		22.95		-0-	
Accomplishment		.59		.31	
Power		.31		.08	
Recognition		.37		.14	
Affiliation		.15		.06	
Saliency		.02		.004	
Source	df	Sum of Squares	Mean Square	F	p
Model	3	35911.14	7182.23	208.84	.0001
Error	3903	134228.80	34.39		
Total	3908	170139.94	$R^2 = 21\%$		

A canonical analysis was also conducted in which each of the school culture dimensions were related to each of the motivation items. These results are presented in

Table 9, where it is seen that Accomplishment and Recognition again received the highest weight. Additionally, it may be noted that function 1, which is largely composed of the Accomplishment factor, tends to be especially related to Attainment Value, Sense of Competence, and Continuing Motivation. Function 2, which is largely composed of the Recognition factor with negative loading on the Power dimension, is associated with Sense of Competence, and Continuing Motivation.

Table 9

School Culture and Motivation:

Summary of Results of Canonical Analysis

	Function 1	Function 2
School Culture Variables		
Accomplishment	.72*	.19
Power	.16	-.22
Recognition	.23	.42
Affiliation	.06	.35
Overall	.10	-1.04
Motivational Variables		
Expectancy	.15	.04
Attainment Value	.41	-.44
CM Test	.22	-.28
Attribution	.10	.06
Minimal St.	-.03	.06
Work hard cf others	.30	.32
CM Class (Eng.)	.07	-.19
CM Class (Math)	.14	.33
CM Class (NS)	.12	.24
CM Class (FL)	.01	-.04
CM Class (SS)	.01	-.04

*Standardized Canonical Coefficients

The results in Table 10 portray the (weaker, albeit significant) relationship of the same culture dimensions with student scholastic achievement as measured by a standardized test. Note that Recognition emerges as the strongest predictor of achievement.

Table 10
School Culture and Achievement:
Summary of Multiple Regression Results

School Culture Dimensions	Standardized BETA Weights		
	Mathematics	Reading	Natural Science
Accomplishment	.07	.09	.03
Power	-.01	-.01	-.02
Recognition	.12	.16	.11
Affiliation	.26	.08	.08
Overall	-.11	-.11	-.12
R^2 (% of variance accounted for):	4%	5%	3%

School Culture X Student Sociocultural Background. The second basic question considered in the analyses was whether or how student background (ethnicity and social class) interacted with the school culture dimensions in predicting motivation and achievement. In this regard, a series of multiple regression analyses were conducted for ethnicity and for each of a number of groupings of father's and mother's education.

The results of these analyses in the case of ethnicity is presented in table 11. There it can be seen, first of all, that there is an overall relationship between school culture and motivation score in the case of each of the ethnic groups, However, it may be noted that the degree of this relationship varies. It is greatest for Asians and least for whites. Moreover, the importance the school culture dimensions vary for each of the ethnic groups. Thus, in the case of whites and Hispanics, accomplishment is most strongly associated with motivation. In the case of blacks and Asians, recognition is most strongly associated

with motivation. Incidentally, it is also of passing interest that school culture seems to be especially important in accounting for the motivation of Asians. It is of least importance in predicting motivation of Caucasians. Moreover, in looking more closely at the contribution of the various culture dimensions to the prediction of motivation in the case of Asians, it may be noted it is different from the other groups, especially in the fact that Affiliation looms as important.

Table 11
School Culture X Student Ethnicity:
Summary of Multiple Regression Analysis of
School Culture Dimension on Motivation
for each Ethnic Group

School Culture Dimensions	Standardized Beta Weights			
	White	Black	Hispanic	Asian
Accomplishment	.32	.18	.31	.03
Power	.08	.12	.09	.07
Recognition	.15	.21	.08	.37
Affiliation	.06	.10	-.05	.19
Overall	.01	-.01	.13	.06
R^2 (% of variance accounted for):	23%	33%	44%	58%

Considering parental educational background as a possible factor, a series of analyses of the relationships of school culture dimensions to student motivation in relationships to father's and mother's education was conducted. The results are presented in tables 12 and 13 . In this regard, several summary observations are warranted. Accomplishment and (to a lesser degree) Recognition are important across groups varying in parental education and, it is difficult to associate a special pattern with any of the groups.

Table 12
School Culture X Student's "Social Class":
Summary of Multiple Regression Results of School Culture Dimensions on Motivation in Regard to Level of Father's Education

Dimensions	Category Breakdown I: Non-High School	High School	Vo-Tec	To College*	College
Accomplishment	.30	.31	.33	.28	.34
Power	.05	.11	.04	.08	.03
Recognition	.17	.15	.07	.12	.17
Affiliation	.04	.03	.12	.11	.04
Overall	.11	.02	.05	-.07	-.03
R^2 (% of variance accounted for):	26%	29%	23%	29%	21%

*Represents attended but did not complete college

Dimensions	Category Breakdown II: No College	Two Years	Four Years	Masters	Doctor/ Prof
Accomplishment	.31	.33	.38	.38	.15
Power	.08	.11	-.01	.01	.13
Recognition	.15	.10	.10	.20	.40
Affiliation	.05	.06	.04	.16	.02
Overall	.04	-.01	.00	-.07	-.05
R^2 (% of variance accounted for):	24%	22%	20%	24%	28%

Table 13
School Culture X Student's "Social Class":
Summary of Multiple Regression Results of School Culture Dimensions on Motivation in Regard to Level of Mother's Education

Dimensions	Category Breakdown I: Non-High School	High School	Vo-Tec	To College*	College
Accomplishment	.35	.33	.27	.23	.29
Power	.07	.09	-.05	.14	.09
Recognition	.16	.14	.25	.12	.15
Affiliation	.00	.05	.03	.15	.05
Overall	.08	.02	.08	-.05	.00
R^2 (% of variance accounted for):	26%	24%	23%	19%	20%

*Represents attended but did not complete college

Dimensions	Category Breakdown II: No College	Two Years	Four Years	Masters	Doctor/ Prof
Accomplishment	.34	.25	.30	.23	.44
Power	.07	.10	.11	.08	.15
Recognition	.14	.14	.10	.22	.26
Affiliation	.05	.09	.03	.11	-.08
Overall	.04	-.01	.00	-.07	-.05
R^2 (% of variance accounted for):	23%	21%	17%	22%	44%

Student Academic/Vocational Orientation. Finally, we consider how the student academic/vocational orientation may interact with school culture in predicting motivation. The results of these analyses are presented in table 14 where it can be seen that there is little basis for suggesting that school culture relationships are modified by student enrollment orientation.

Table 14
Regression of School Culture Dimensions on Motivation
by Student Course of Study

Dimension	College Prep.	Business/ Commercial	Vocation/ Technical	General
Accomplishment	.29	.33	.31	.19
Power	.07	.08	.13	.05
Recognition	.12	.15	.07	.14
Affiliation	.03	.01	.06	.04
Overall	-.03	-.01	.15	.10
R^2 (% of variance accounted for):	15%	20%	27%	15%

Discussion

Generally, Study 3 reveals a pattern of results that indicates several things. First, the perception of differential perceived stress on different cultural goals within a school is related to different motivational patterns. At the very least, this provides some basis for further exploration of the influence of these stresses on motivation and achievement. More than that, it seems logical to suggest that it is not just that a school may have a "bad" or a "good" culture so far as motivation and achievement is concerned, it appears that the situation is much more complicated than that -- and that these dimensions derived from personal investment theory are able to index some of this complexity. Indeed, it seems that

we are beginning to identify several important dimensions of school culture, dimensions that are likely to affect student motivation and thereby influence student achievement.

What is also interesting, though perhaps somewhat problematic so far as educational practice is concerned, is that the different perceptions of the school culture seemed to have differential effects depending on the ethnicity of the students. We suggest that this may be problematic, since many schools are likely to be characterized by a heterogeneous student population. How does one modify the school culture to meet the needs of such diversity? As in the study of classroom environments (cf. for example Ames and Ames, 1984), it is most convenient to look for the one most optimizing environment, the environment that works best across diverse groups and individual variation. Be that as it may, the finding is an interesting one, one that should be considered as the matter of school culture and the sociocultural background of students is subjected to further study.

Conclusions

Generally, these studies of school culture, motivation, and achievement seem to suggest several things.

Earlier work on a wide variety of organizations indicated that a psychometric approach to assessing organizational culture was viable. The dimensions evolving from this work seemed to have utility in describing and distinguishing a wide range of organizations (cf. Maehr & Braskamp, 1986; Maehr, 1987). Moreover, these scales appear to be useful in predicting important dimensions of organizational behaviors, especially job satisfaction and organizational commitment (Hensler, Krug, Maehr, 1988). Parallel work by Krug (this volume) has affirmed the psychometric acceptability of these dimensions in the analysis of school contexts and has, further, improved the items and scale structure, reliability and general utility of these instruments. Krug's work has not only shown that schools differ on these organizational culture dimensions but has

suggested how knowing such differences may prove useful in developing strategies for school improvement.

The present chapter pulls together parallel work directed specifically toward determining whether and how school culture as defined by these dimensions relates more specifically to motivation and achievement. Clearly, these studies present strong preliminary evidence that the perceived culture of the school relates to motivation and ultimately school achievement. The findings of Study 1 vis a vis Studies 2 and 3 affirm what has sometimes been asserted, namely, that it is not the "physical" characteristics associated with the school that are as important as the "psychological" characteristics. In addition, there is evidence regarding how different types of school culture may well be differentially important depending on the nature of the students -- their ethnic and social background in particular. This finding is certainly intriguing and it may also prove problematic in designing the one perfect school.

Finally, it is of some significance to note that this research extends the implications of current research on motivation. Recent research has given new meaning to the concept of "goals" in the study of motivation, showing how the perceived meaning or purpose of an activity drastically modifies motivational behavior in a quantitative as well as qualitative fashion (Ames & Ames, 1988 - In Press). In this regard, recent research by Ames and her colleagues (Ames, 1987; Ames & Archer, 1988; Ames et al., 1989) has shown how the perceived goals of the classroom significantly modify the students' approach to learning. Thus, when Mastery (comparable to what is here termed "Accomplishment") goals are more salient than Performance (here termed "Power") goals, students are likely to be more inclined toward academic challenge and learning for its own sake (cf. Nicholls, Cheung, Lauer, & Patashnick, 1988-In Press). The present findings on the school organization as a whole do not render such a specific verdict on how goal profiles may affect the quality of motivation and achievement exhibited. But that, of course, is an interesting question. Clearly, in future studies of school culture one ought to look beyond such educational

outcomes as are assessed by achievement tests to consider a broader range of possibilities, including especially such outcomes as continuing motivation (Maehr, 1976), intellectual venturesomeness, curiosity, and creativity (Amabile, 1983; Archer, 1989).

Be that as it may, the results suggest that the larger psychological environment of the school is not an irrelevant variable. This finding prompts a number of interesting questions, each worthy of extended study. Thus, for example, one might ask how school culture interlocks with classroom culture. Perhaps the student simply sees the school -- somewhat imperfectly -- through the lens of the classroom. Perhaps the school culture is influential as it affects the culture of the classroom. Possibly , school and classroom culture can exist somewhat independent of each other and in given instances be differentially important. In any event, we have presented some evidence that there is a perception of a psychosocial entity called the school, which apparently relates to student motivational orientation and achievement. Further evidence is presented in the Krug chapter in this volume.

One can assert with some confidence that significant and important aspects of school culture have been identified. These dimensions can be reliably and conveniently assessed. And, perhaps most important of all, these assessments appear to relate in a causal way to student motivation and scholastic achievement. The evidence is already sufficient to prompt the question: What can the school leader do to influence school culture and, thereby, influence student motivation and achievement? That is a fitting subject for future research.

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